

**ABSTRACT****METHOD AND APPARATUS FOR THE POWER CONTROL SYSTEM OUTER  
LOOP OF A MOBILE COMMUNICATIONS SYSTEM**

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Method and apparatus for the power control system outer loop of a mobile communications systems in a cellular infrastructure that allows fulfilling a given Quality of Service (QoS) with the minimum power level necessary. This outer loop is in charge of setting the desired signal to interference target ratio  $SIR_{tgt}$  that fulfils the required quality of service in a radioelectric environment characterised by stochastic models. The proposed method is based on the application of the Newton-Raphson iteration method on numerical approximations of the various outage probability (QoS) probability density functions in various propagation environments, so that having established this probability and dynamically estimated the second order moments characteristic of each statistic considered, the margin over the SIR median is obtained and thereby the  $SIR_{tgt}$  corresponding to the aforementioned outage probability.

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